

REMARKS

Claims 1, 2, 4 to 13 and 21 to 23 remain in the present application. Claims 3 and 14 to 20 have been canceled without prejudice. There is support in the specification, claims and drawings for the amendments to the claims.

Reconsideration of the Examiner's decisions and reexamination of this application are respectfully requested. Entry of this Amendment After Final Rejection is respectfully requested as it places the claims in condition for allowance or in better form for consideration on appeal. It is noted that the amendments to the claims consist of merely combining the subject matter of claim 3 into claim 1, canceling claim 3 and combining the subject matter of previously amended claim 1 into claim 23. As such, no new search will be required by the Examiner and the amendments will only require a cursory review by the Examiner.

The §102 rejection:

Claims 1 to 6 and 21 to 23 have been rejected by the Examiner under 35 USC §102(e) as being anticipated by Ahn et al. U.S. Patent 6,531,945 (hereafter "Ahn").

Claim 3 has been canceled.

Claim 1 as amended claims the embodiments as illustrated in Figures 3 to 5. As recited in claim 1, each turn of the inductor comprises a bottom portion, a top portion and two side portions. These embodiments further illustrate, and claim 1 further recites, that the top and bottom portions (of each turn of the inductor) comprise two parallel wiring lines in juxtaposition. Referring to Figure 3, it can be seen that top portion 18 comprises two parallel wiring lines 18A, 18B in juxtaposition and bottom portion 20 comprises two parallel wiring lines 20A, 20B in

juxtaposition. Such an arrangement minimizes the resistance of the top and bottom portions, thereby increasing the inductance and optimizing Q (see specification, page 11, lines 18-24, and page 12, lines 1-6).

Considering Ahn now, the reference shows top and bottom portions 220, with each turn of the inductor comprising only a single wiring line for the top portion and a single wiring line for the bottom portion. While Ahn does show top portions and bottom portions in juxtaposition, these are in different turns of the inductor, contrary to the limitations of Applicants' claim 1 which require the juxtaposed parallel wiring lines in each turn of the inductor. Accordingly, Ahn cannot anticipate Applicants' claim 1.

Claim 23 has now been made independent. Claim 23 is similar to claim 1 except that the juxtaposed parallel wiring lines in each turn of the inductor are of unequal length. This is the embodiment shown in Applicants' Figure 5. Since Ahn clearly does not show the embodiments as claimed in claim 1, Ahn cannot show the embodiment claimed in claim 23. More importantly, the configuration shown in Figure 5 more closely approximates the shape of a circle so as to further increase the Q of the embedded inductor. Accordingly, Ahn cannot anticipate Applicants' claim 23.

Inasmuch as claims 2, 4 to 6, 21 and 23 depend from claim 1, and since claim 1 is believed to be patentably distinguishable over Ahn, then claims 2, 4 to 6, 21 and 23 should be patentable as well. In addition, claims 4 to 6 are believed to be independently patentable.

Claims 4 to 6, which depend from claim 1, claim vias connecting the juxtaposed parallel wiring lines of the top and bottom portions. The vias may be only at the ends of the juxtaposed parallel wiring lines as shown in Figure 3 or spaced along the length of the juxtaposed parallel wiring lines as shown in Figures 4 and 5. These vias are different from the side portions of each turn of the inductor.

Ahn discloses only paths 140 between the top and bottom portions 220 of the inductor. These paths 140 are equivalent to the side portions of Applicants' inductor. However, Ahn can not show vias between the juxtaposed parallel wiring lines of the top and bottom portions of each turn of the inductor because Ahn does not show parallel wiring lines of the top and bottom portions of each turn of the inductor or vias between those parallel wiring lines as claimed by Applicants. Accordingly, Ahn cannot anticipate Applicants' claims 4 to 6.

The §103 rejections:

I. Claim 7 has been rejected by the Examiner under 35 USC §103(a) as being unpatentable over Ahn in view of Burghartz et al. U.S. Patent 5,884,990.

Inasmuch as claim 7 depends from claim 1 and since claim 1 is believed to be patentable, then claim 7 should be patentable as well. No independent ground of patentability is asserted for claim 7 at this time.

II. Claims 8 to 10 and 13 have been rejected by the Examiner under 35 USC §103(a) as being unpatentable over Ahn in view of Liu et al. U.S. Patent 6,459,352 (hereafter "Liu").

Inasmuch as claims 8 to 10 and 13 depend from claim 1, and since claim 1 is believed to be patentable, then claims 8 to 10 and 13 are believed to be patentable as well. In addition, claims 9 and 10 are believed to be independently patentable.

As Applicants noted above, Ahn does not teach the basic aspects of Applicants' invention. Claims 9 and 10 recite additional features of Applicants' invention, namely tuning the

inductor by deleting a portion of the inductor (claim 9) or adding at least one additional buried loop to the inductor (claim 10).

Neither Ahn nor Liu teach the aspects of Applicants' invention claimed in claims 9 and 10. Ahn teaches a single inductor while Liu teaches a transformer, which essentially is an inductor coiled within another inductor. Neither of Ahn nor Liu teaches tuning of the inductor. Liu does state, as noted by the Examiner, that the size of the inductor is an important factor with respect to the use of the inductor and its Q factor. The solution to this requirement is to make a small size, high Q inductor as taught by Liu. Liu says nothing about tuning the inductor by adding an additional loop or deleting a portion of the inductor. It is recognized, as further noted by the Examiner, that Liu teaches two inductors to form a transformer. However, these inductors at all times appear to be separated from each other and there appears to be no teachings in Liu to connect these two inductors or a portion of each of the inductors to tune the resulting inductor. It is thus submitted that the Examiner has failed to state a prima facie case of obviousness with respect to claims 9 and 10 since the combination of Ahn and Liu fail to teach the limitations of these claims.

III. Claims 11 and 12 have been rejected by the Examiner under 35 USC §103(a) as being unpatentable over Ahn in view of Eberhardt U.S. Patent 5,461,353 (hereafter "Eberhardt").

Inasmuch as claims 11 and 12 depend from claim 1, and since claim 1 is believed to be patentable, then claims 11 and 12 should be patentable as well. In addition, claims 11 and 12 are believed to be independently patentable.

As Applicants noted above, Ahn does not teach the basic aspects of Applicants' invention. Claims 11 and 12 recite additional features of Applicants' invention, namely tuning the inductor by the addition of a plate adjacent to the inductor. In claim 11, the plate is

electrically isolated from the inductor while in claim 12, the plate is electrically connected to the inductor.

Neither Ahn nor Eberhardt teaches the aspects of Applicants' invention claimed in claims 11 and 12. Ahn does not teach tuning of the inductor. While Eberhardt does teach tuning of the inductor, the tuning is done in a different manner than that claimed by Applicants. That is, Eberhardt's inductor is tuned by metallized runners. By cutting a runner, the number of turns of the inductor is increased. Only whole turns are added at a time; this is a very coarse adjustment.

Applicants' invention, on the other hand, uses an adjacent plate to tune the inductor which is structurally different than the metallized runners of Eberhardt. The plate is always there and always affects the inductance of the inductor because the adjacent plate is always magnetically or electrically coupled to the inductor. Any fine tuning can be done by deleting portions of the plate. Thus, Applicants' tuning apparatus as claimed in claims 11 and 12 is structurally different than the metallized runners in Eberhardt and operates functionally differently as well. Accordingly, the combination of Ahn and Eberhardt cannot render obvious Applicants' claims 11 and 12.

Summary:

In view of all of the preceding remarks, it is submitted that claims 1, 2, 4 to 13 and 21 to 23 are in condition for allowance. If the Examiner finds this application deficient in any respect, the Examiner is invited to telephone the undersigned at the Examiner's earliest convenience to resolve such deficiency.

No fee is believed to be due for this submission. If any fees are required, however, the Commissioner is hereby authorized to charge such fees to Deposit Account No. 09-0458.

Respectfully submitted,
David C. Long, et al.

By: 

Ira D. Blecker, Attorney
Registration No. 29,894
Telephone: (845) 894-2580

10/016,090

11

FIS920010163US1